

WHAT IS CLAIMED IS:

1. An optical disk apparatus comprising:

a photo detector in which a detecting area thereof is divided into four detecting areas by two axes of a track axis arranged in parallel to a track of an optical disk and an axis orthogonal to the track axis, and configured to detect light reflected from the optical disc;

an error signal generating circuit configured to calculate a first difference between a result of an addition of outputs of one diagonal pair of detecting areas and a result of an addition of outputs of the other diagonal pair of detecting areas, and a second difference between a result of an addition of outputs of a pair of detecting areas positioned on one side with respect to the track axis and a result of an addition of outputs of the other pair of detecting areas positioned on the other side with respect to the track axis, and to output the result of the calculation of the first difference and the second difference as a focus error signal and a tracking error signal, respectively;

a crosstalk correcting section configured to reduce a crosstalk component in the focus error signal, the crosstalk component produced by the tracking error signal when a track jump is performed;

a crosstalk level determining section including: a

first counting unit configured to count a number of level changes of the tracking error signal; and a second counting unit configured to count a number of level changes of the focus error signal that are larger than a predetermined width, and configured to determine that the crosstalk level is larger than a predetermined value by assuming that the crosstalk component is larger than a width of level changes of the focus error signal is larger than a predetermined value, and a period of level changes of the focus error signal is approximate to a period of level changes of the tracking error signal, in a case where a count result of the first counting unit is approximate to a count result of the second counting unit when the track jump is performed without applying a tracking servo; and

15 a change width ratio determining section configured to detect a ratio of a level change width of the tracking error signal and a level change width of the crosstalk component in a case where the track jump is performed without applying the tracking servo,

20 wherein the crosstalk correcting section is configured to reduce the crosstalk component by: increasing or decreasing the level change width of the tracking error signal in accordance with the ratio detected by the change width ratio determining section; and
25 subtracting the tracking error signal in which the level

change width is increased or decreased, from the focus error signal, in a case where the crosstalk level determining section determines that the crosstalk component is larger than the predetermined level, and is
5 configured not to reduce the crosstalk component in a case where the crosstalk level determining section determines that the crosstalk component is not larger than the predetermined level.

2. An optical disk apparatus comprising:

10 a photo detector configured to detect light reflected from an optical disc;

an error signal generating circuit configured to output a focus error signal and a tracking error signal based on an output of the photo detector;

15 a crosstalk correcting section configured to reduce a crosstalk component in the focus error signal, the crosstalk component produced by the tracking error signal when a track jump is performed; and

a crosstalk level determining section configured to
20 determine whether or not the crosstalk level is larger than a predetermined value in a case where the track jump is performed without applying a tracking servo,

wherein the crosstalk correcting section is configured to reduce the crosstalk component by use of the
25 tracking error signal in a case where the crosstalk level

determining section determines that the crosstalk component is larger than the predetermined level, and is configured not to reduce the crosstalk component in a case where the crosstalk level determining section determines
5 that the crosstalk component is not larger than the predetermined level.

3. The optical disk apparatus as claimed in claim 2, wherein the photo detector comprises a detecting area being divided into the four detecting areas by two axes of a track
10 axis arranged in parallel to a track of the optical disk and an axis orthogonal to the track axis.

4. The optical disk apparatus as claimed in claim 3, wherein the error signal generating circuit is configured to calculate a first difference between a result of an
15 addition of outputs of one diagonal pair of detecting areas and a result of an addition of outputs of the other diagonal pair of detecting areas, and a second difference between a result of an addition of outputs of a pair of detecting areas positioned on one side with respect to the track axis
20 and a result of an addition of outputs of the other pair of detecting areas positioned on the other side with respect to the track axis, and to output the result of the calculation of the first difference and the second difference as a focus error signal and a tracking error
25 signal, respectively.

5. The optical disk apparatus as claimed in claim 2 further comprising a change width ratio determining section configured to detect a ratio of a level change width of the tracking error signal and a level change width of the crosstalk component in a case where the track jump is performed without applying the tracking servo,

wherein the crosstalk correcting section is configured to reduce the crosstalk component by: increasing or decreasing the level change width of the tracking error signal in accordance with the ratio detected by the change width ratio determining section; and subtracting the tracking error signal in which the level change width is increased or decreased, from the focus error signal.

6. The optical disk apparatus as claimed in claim 5, wherein the crosstalk correcting section is configured not to reduce the crosstalk component in a case where the crosstalk level determining section determines that the crosstalk component is not larger than the predetermined level.

7. The optical disk apparatus as claimed in claim 2, wherein the crosstalk level determining section determines that the crosstalk level is larger than a predetermined value in a case where the crosstalk component is larger than a width of level changes of the focus error signal

is larger than a predetermined value, and a period of level changes of the focus error signal is approximate to a period of level changes of the tracking error signal.

8. The optical disk apparatus as claimed in claim 2,
5 wherein the crosstalk level determining section comprises:

a first counting unit configured to count a number of level changes of the tracking error signal; and

a second counting unit configured to count a number of level changes of the focus error signal that are larger
10 than a predetermined width.

9. The optical disk apparatus as claimed in claim 8, wherein the crosstalk level determining section is configured to determine that the crosstalk level is larger than a predetermined value by assuming that the crosstalk
15 component is larger than a width of level changes of the focus error signal is larger than a predetermined value, and a period of level changes of the focus error signal is approximate to a period of level changes of the tracking error signal, in a case where a count result of the first
20 counting unit is approximate to a count result of the second counting unit when the track jump is performed without applying a tracking servo.